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| APPLICATION NO. | FILING DATE | FIRST NAMED INVENTOR | ATTORNEY DOCKET NO. | CONFIRMATION NO. |
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| 09/659,456 | 09/11/2000 | Yoji Okazaki | Q58705 | 5835 |

7590

05/15/2003

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EXAMINER

NGUYEN, JOSEPH H

ART UNIT

PAPER NUMBER

2815

DATE MAILED: 05/15/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/659,456

Applicant(s)

OKAZAKI ET AL.

Examiner

Joseph Nguyen

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 March 2003.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-58 is/are pending in the application.
- 4a) Of the above claim(s) 10-27 and 37-54 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-9, 28-36 and 55-58 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 11 September 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on _____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____
- 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 28-36, 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable over Mooradian et al (US 5,461,637) in view of Ishikawa et al.

Regarding claim 1, Mooradian et al discloses on figure 1 a laser apparatus comprising semiconductor laser element 10 having a first active layer emitting first laser light; and a surface emitting semiconductor element having a second active layer 22 made of a GaN based compound being excited with said first laser light and emitting second laser light 30.

Mooradian does not disclose a first active layer made of a GaN based compound. However, Ishikawa et al discloses on figure 1 a first active layer 14 made of GaN. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mooradian et al by having a first active layer made of a GaN based compound for the purpose of enhancing short wavelength lasers and focusing beams to small diameters as taught by Ishikawa et al (col. 1, lines 27-30).

Regarding claim 28, Mooradian et al discloses on figure 1 a laser apparatus comprising semiconductor laser element 10 having a first active layer emitting first laser light; and a surface emitting semiconductor element having a second active layer 22

made of a GaN based compound and a first mirror 20 arranged on one side of said second active layer 22; and a second mirror 18 arranged outside said surface emitting semiconductor element so that said first and second mirrors form a resonator.

Mooradian does not disclose a first active layer made of a GaN based compound. However, Ishikawa et al discloses on figure 1 a first active layer 14 made of GaN. In view of such teaching, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Mooradian et al by having a first active layer made of a GaN based compound for the purpose of enhancing short wavelength lasers and focusing beams to small diameters as taught by Ishikawa et al (col. 1, lines 27-30).

Regarding claims 2-9, 29-36, 57-58, Mooradian et al and Ishikawa et al together disclose all the structure set forth in the claimed invention.

Regarding claims 55-56, the claim language is merely the functional language and therefore is not given a patentable weight.

Response to Arguments

Applicant's arguments filed on 3/20/2003 have been fully considered but they are not persuasive.

With respect to claims 1 and 8, applicant argues that Mooradian and Ishikawa fail to disclose a second layer made of a GaN based compound. However, Mooradian discloses that active layer comprising quantum well materials are binary, ternary or quaternary compounds taken from the group III-V table of elements (col. 5, lines 5-10). It is clear that GaN is compound taken from the group III-V table of elements.

Also, applicant argues that Ishikawa discloses the GaN layers used for a laser excited electrical current, not for a surface emitting semiconductor element excited with a first laser light. However, this limitation is merely the intended use. It is well known that a semiconductor laser can be either optically or electrically excited.

Further, Mooradian et al teaches that the substrate materials are binary, ternary or quaternary compounds taken from the group III-V table of elements (col. 5, lines 5-10). It is clear that GaN is compound taken from the group III-V table of element. Lastly, Ishikawa teaches that the first 14 active layer is made of InGaN (col. 10, lines 20-25). Therefore, the combination of Mooradian et al and Ishikawa would read on new claims 57-58.

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of

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the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Joseph Nguyen whose telephone number is (703) 308-1269. The examiner can normally be reached on Monday-Friday, 7:30 am- 4:30 pm

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Eddie Lee can be reached on (703) 308-1690. The fax phone numbers for the organization where this application or proceeding is assigned is (703) 308-7382 for regular communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

JN
May 13, 2003


ALLAN R. WILSON
PRIMARY EXAMINER